



OPERATIONAL SUITABILITY DATA (OSD)

Flight Crew

AIRCRAFT INDUSTRIES, A.S.

L 410 UVP-E20 AND L 410 NG

REVISION ORIGINAL

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ACRONYMS

ABC	Automatic Bank Control
AFCS	Automatic Flight Control System
AFM	Airplane Flight Manual
ANAC	<i>Agência Nacional de Aviação Civil</i> , Brazilian Civil Aviation Authority
ANSP	Air Navigation Service Provider
APU	Auxiliary Power Unit
COM	Communication
CVR	Cockpit Voice Recorder
DR	Differences Requirements
EASA	European Union Aviation Safety Agency
EFIS	Electronic Flight Instrument System
ELU	Electronic Limiter Unit
ESIS	Electronic Standby Instrument System
FC	Flight Crew
FCD	Flight Crew Data
FD	Flight Director
FDR	Flight Data Recorder
FFS	Full Flight Simulator
FH	Flight Hours
FSTD	Flight Simulation Training Device
FTD	Flight Training Device
GIA	Garmin Integrated Avionics
GPS	Global Positioning System
GPWS	Ground Proximity Warning System
IFR	Instrument Flight Rules
IFRA	Instrument Rating – Airplane
ILS	Instrument Landing System

IS.....	<i>Instrução Suplementar</i> , Supplementary Instruction
LH	Left Hand
MCC.....	Multi Crew Coordination
MDR.....	Master Differences Requirements
MFD.....	Multi-Function Display
NAV	Navigation
ODR	Operator Differences Requirements
OEI.....	One Engine Inoperative
OSD.....	Operational Suitability Data
OVHD.....	Overhead
PCA	Airplane Commercial Pilot License
PF.....	Pilot Flying
PFD	Primary Flight Display
PIC	Pilot in Command
PLA.....	Airline Transportation Pilot License (ATPL)
PM	Pilot Monitoring
RBAC.....	<i>Regulamento Brasileiro de Aviação Civil</i> , Brazilian civil aviation regulation
RH	Right Hand
SIC.....	Second in Command
STOL.....	Short Take Off and Landing
TASE.....	Training Areas of Special Emphasis
TAWS	Terrain Awareness and Warning System
TCAS	Traffic Alert and Collision Avoidance System
TCDS	Type Certificate Data Sheet
UPRT.....	Upset Prevention and Recovery Training
VFR	Visual Flight Rules
VHF	Very High Frequency
WAAS.....	Wide Area Augmentation System

1. INTRODUCTION

1.1. Background

ANAC's operational evaluation of the LET Aircraft Industries L 410 UVP-E20 and L 410 NG aircraft was conducted by documental analysis using information provided by the Original Equipment Manufacturer (OEM) and the determinations of the EASA-approved Operational Suitability Data Flight Crew (OSD FC) Report, third revision dated 06 May 2024.

In case more detailed information is required, refer to the Aircraft Industries Report mentioned above.

1.2. Objective

The objective of this report is to present the ANAC Flight Crew Data (FCD) related to the L 410 UVP-E20 and L 410 NG aircraft.

The content of this report is applicable to operations under the framework of ANAC.

1.3. Purpose

The purpose of this report is to:

- Determine the Pilot Type Rating assigned for the L 410 UVP-E20 and L 410 NG aircraft;
- Recommend the requirements for training, checking, and currency applicable to flight crew for the L 410 UVP-E20 and differences to the L 410 NG aircraft; and
- Determine the operational suitability of the L 410 UVP-E20 and L 410 NG aircraft.

1.4. Applicability

This report is applicable to:

- ANAC employees who approve training programs;
- ANAC employees and designees who certify airmen; and
- Aircraft operators and training providers certified / approved under Brazilian requirements to assist them in developing their flightcrew member training, checking, and currency.

1.5. Cancellation

Not Applicable.

2. SUMMARY AIRCRAFT DESCRIPTION

The L 410 UVP-E20 and L 410 NG aircraft are twin-engine turboprop aircraft for transportation up to 19 passengers and cargo and is able to take-off and land on paved as well as unpaved runways.

The fuselage is an all-metal structure consisting of 27 fuselage frames and bulkheads, longitudinal stiffeners, floor and ceiling longitudinal ribs, floors, outer skins and landing gear nacelles.

The front part of the fuselage begins with a nose cone, made of glass fiber-reinforced plastic, and ends at frame No. 8. In this part of the fuselage are located: the front baggage compartment, the nose landing gear bay, electric and radio equipment bays, and the cockpit is arranged between bulkhead No. 4 and frame No. 7.

The fuselage center section, between frames No. 8 and No. 18, accommodates the passenger cabin. Four wing attachments are located at frame No. 12 and No. 14.

The rear section of the fuselage extends from frame No. 18 to frame No. 27 and terminates in a tail cone made of glass fiber-reinforced plastic. The baggage compartment and lavatory are situated in the rear section of the fuselage. Bay for instruments (only for special version) is located behind frame No. 21. The tail attachment fittings are located at the reinforced frames No. 25 and No. 26.

The wing is an all-metal structure and consists of two spars, cross ribs and skin with stringers. The wing is attached to the fuselage by means of four attachment lugs, located on the wing rib No. 3. The four engine attachment fittings are located on ribs No. 8 and No. 10. Three wing tip tank attachment fittings are located on ribs No. 31. Rubber fuel tanks are installed between the front and rear spars. The double-slotted wing flaps are split into an inner (ribs No. 4 to No. 10) and outer section (ribs No. 10 to No. 20). The ailerons are between ribs No. 20 and No. 31. Ground spoilers are between ribs No. 11 and No. 20. Automatic bank control tabs are located between ribs No. 27 and No. 31. The ailerons are fabric-covered. The LH aileron is fitted with a trim tab.

L 410 UVP-E20: Rubber fuel tanks are installed between the front and rear spars.

L 410 NG: Integral fuel tanks are located in center wing cavity between front and rear wing spars, upper and lower integral wing panels and ribs No. 21 and No. 102.

The tail unit consists of a horizontal tail, composed of a horizontal stabilizer and an elevator and a vertical tail with a fixed fin as vertical stabilizer and a rudder.

The airplane is provided with dual control.

The ailerons and the elevator are actuated by control columns through the system of tie rods.

The rudder is controlled by two interconnected pedal units through a system of tie rods and cables.

The main landing gear brake valves are also controlled by the pedals.

The elevator trim tabs are controlled mechanically by means of a cable circuit and also electrically via autopilot pitch trim servomechanism. The rudder trim tab and the left aileron trim tab are controlled electrically. The ground spoilers, wing flaps and automatic bank control tabs are controlled electro hydraulically. Nose wheel steering is performed by an electrohydraulic unit which is actuated either manually (by a lever located on the control column) or by pedals.

The landing gear is of three-wheel design. It consists of the nose and main landing gear, a number of hydraulic, mechanical and electric systems providing the assistance in the retracting and

extending of landing gear, nose landing gear wheel steering and wheel breaking. The system is equipped with the emergency circuit for main landing gear extending and wheel braking for the case of the main hydraulic circuit failure.

The engine is designed as a turboprop, two-shaft with engine reverse flow and with free turbine.

3. PILOT TYPE RATING

The pilot type rating for L 410 UVP-E20 and L 410 NG is designated as “L410”.

The L 410 UVP-E20 aircraft represents the base aircraft from FCD point of view.

L 410 UVP-E20 and L 410 NG aircraft have minimum crew determinations for 2 pilots and all operations require a Co-pilot.

Table 1 – L 410 pilot type rating

Fabricante (Manufacturer)	Aeronave (Aircraft)		Observações (Remarks)	Designativo (Designative)
	Modelo (Model)	Nome (Name)		
AIRCRAFT INDUSTRIES A.S.	L 410 UVP-E20		Relatório de FCD Aircraft Industries, A.S. L 410 UVP- E20 and L 410 NG <i>ANAC OSD-FC Report Aircraft Industries, A.S. L 410 UVP-E20 and L 410 NG</i>	L410
	L 410 NG			

4. MASTER DIFFERENCE REQUIREMENTS (MDR)

The Master Difference Requirements matrix for L 410 UVP-E20 and L 410 NG MDR is shown in table 2. These provisions are applied when there are differences between models which affect crew knowledge, skills, or abilities related to flight safety (e.g., Level A or greater differences) for training, checking and currency, respectively, according to ANAC IS 21.61-001.

Table 2 – L 410 UVP-E20 and L 410 NG MDR matrix

		FROM AIRPLANE	
		L 410 UVP-E20	L 410 NG
TO AIRPLANE	L 410 UVP-E20	-	Not Evaluated
	L 410 NG	D/D/C	-

5. DIFFERENCES REQUIREMENTS (DR)

Aircraft Industries provided Differences Requirements (DR) tables, which were considered acceptable by ANAC.

The DR tables are presented in Appendix 2 of this report and may serve as a basis for the operator to develop its own Operator Differences Requirements (ODR) tables to address the differences indicated in the MDR.

These DR tables are generic and therefore may not include optional items that are applicable to particular operators. **Only differences FROM L 410 UVP-E20 TO L 410 NG have been evaluated.** Reverse direction differences from L 410 NG to L410 UVP-E20 have not been evaluated.

6. SPECIFICATIONS FOR PILOT TRAINING

6.1. L 410 UVP-E20 Initial Type Rating training

The L 410 UVP-E20 initial pilot type rating course described in this section was evaluated by ANAC and considered to be compliant with the requirements of RBAC 61. The initial type rating training footprint is provided in Appendix 1.

6.1.1. Prerequisites

The candidate pilot must perform the initial type training on L 410 UVP-E20 and must fulfill the following prerequisites:

- Hold a valid ANAC Airline Transport Pilot License - Airplane (PLA) or hold Commercial Pilot License – Airplane (PCA) and had been approved in the theoretical exam of ANAC Airline Transport Pilot License;
- Hold a Land Multiengine Class Rating (MLTE) or a type rating of a multiengine aircraft;
- Hold an IFRA rating;
- For First Officer: At least 70 FH as a PIC on airplanes.
- When PIC is required: At least 500 FH as a pilot on certified airplane in commercial air transport multi-pilot operations.

6.1.2. Training Areas of Special Emphasis (TASE) for the L 410 UVP-20

The following items must receive special emphasis during theoretical and flight training for the L 410 UVP-E20 initial training, as applicable:

1. Operation, limitations and failures of EFIS and ESIS.
2. Primary Flight Instruments. Knowledge and use of separate mechanical flight instruments versus primary flight displays (PFDs) format. Altitude and airspeed are presented on vertical scale instruments in both digital and analogue formats. Pilots need to be able to understand the multitude of information presented on these displays. Pilots transitioning from traditional round dial basic "T" instruments may require additional training and instrument scan practice to gain proficiency in manually flying by reference to the PFD. Recognition of reversionary modes and display failures and appropriate corrective action to be taken should be addressed.
3. Use of Flight Director and Autopilot, and monitoring of modes and limitations.
4. Automatic Bank Control System (ABC). An operational understanding of ABC operation as well as the differences in deactivation based on time versus airspeed associated system function and its impacts on flying characteristics, due to a possible sudden wing drop on the side of failed engine when the ABC tab retracts.
5. Electronic Limiter Unit. An operational understanding of the function of the ELU and associated signal cells and associated pilot actions.
6. Fuel Stop Cock / Emergency fuel control circuit (Emergency Throttle function). An operational understanding for function and use of the Emergency Throttle function.

7. Propeller Control System. Pilots should have an understanding of the Propeller Pre-flight requirements and the different means to manually feather the engine. Knowledge of the propeller operation, control and malfunction, including Pitch Lock.
8. Operation of TCAS & TAWS.
9. MCC procedures.
10. OEI Go Around.
11. UPRT.

6.1.3. Special Events Training

Operators must ensure appropriate training for the type of operations, such as:

1. Operation on different runway surfaces, short runways and small aerodromes.
2. Operation in high temperatures and/or at high altitudes.
3. Passenger / cargo configuration changes, including cargo door handling.

Practical training must include a minimum of one exercise of one engine inoperative flight with complete engine shutdown.

6.1.4. Training for seat dependent tasks

Accomplishment of certain tasks, procedures, or maneuvers require training of a crewmember for a particular crew position (i.e. PIC and SIC). Training programs should recognize and address the necessary seat/position related tasks for the applicable crewmember. Features or procedures which have seat dependent elements include the following:

- a) Pre-flight inspection.
- b) Parking brake procedures.
- c) Rejected take-off.
- d) Deice system use.
- e) Electrical system abnormal procedures and monitor.
- f) Emergency landing gear and flap operation.
- g) Emergency evacuation using RH emergency exit door.

6.2. L 410 NG Differences Training

6.2.1. Prerequisites

The candidate pilot for the L 410 NG Difference Training must be type rated on the L 410 UVP-E20 base aircraft.

6.2.2. Training Areas of Special Emphasis (TASE) specific to L 410 NG model

In addition to the items for the initial type rating on L410 UVP-E20 described in 6.1.2 Training Areas of Special Emphasis (TASE).

1. Operation, limitations and failures of GARMIN® G3000 Avionics Suite.
2. Emergency Procedures specifics to L 410 NG.

6.3. Flight Simulation Training Devices (FSTD)

(RESERVED)

6.4. Training Equipment

(RESERVED)

7. SPECIFICATIONS FOR CHECKING

(RESERVED)

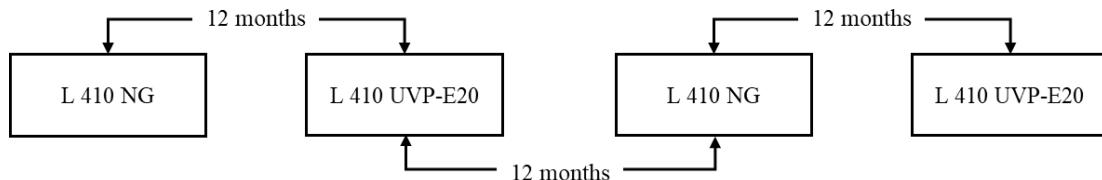
8. SPECIFICATIONS FOR RECENT EXPERIENCE AND CURRENCY

For pilots operating the L 410 UVP-E20 together with L 410 NG currency is maintained by operating each model aircraft through a complete route sector including an instrument approach procedure within the previous 90 days.

Operating both the L 410 UVP-E20 and L 410 NG models requires level C currency.

9. PROFICIENCY CHECKS

When operating a mixed fleet of L 410 NG and L 410 UVP-E20, proficiency checks must address the differences of the models flown or alternate as in the following example.



10. OPERATIONAL SUITABILITY

No flight was conducted by the ANAC to determine operational suitability of the L 410 for operations under RBAC 91 and 135.

11. MISCELLANEOUS

11.1. All Weather / Low Visibility Operations (LVO)

L 410 UVP-E20 and L 410 NG operations to lower than ILS Category I minima have not been evaluated.

11.2. Short Take Off and Landing capability (STOL)

L 410 UVP-E20 and L 410 NG STOL operations have not been evaluated.

Appendix 1 – MINIMUM SYLLABUS FOR PILOT TYPE RATING TRAINING FOR THE L 410 UVP-E20 AIRPLANE (Do-L410-1290.2)

The L 410 UVP-E20 is a twin turboprop with conventional controls, electric and mechanical trimming, hydraulic operated landing gear and an analogue or digital avionic suite.

The theoretical training has to include all aircraft systems and subsystems, as well as aircraft performance, limitations, normal, emergency and abnormal procedures adapted to the analogic and to semi-glass cockpit configuration.

The practical skills are built up by training in the aircraft on ground and in flight, and/or in an FFS/FTD to gain proficiency in flight planning, flight maneuvers, normal, emergency, abnormal procedures, and application of limitations and performance in VFR and IFR flight conditions in multi pilot operation.

1. METHOD OF TRAINING

The pilot type rating training is divided into two separate sections:

1. Theoretical study, which is set up in the form of learning course. The aim of this training section is to become familiarized with technical information about the L 410 UVP-E20 aircraft (aircraft and system description, and operation). This training section is finished with the student proficiency check.
2. Practical ground and flight training on the aircraft including student proficiency check. This training section can be started only if the student successfully passes the check of the theoretical study.

2. THEORETICAL TRAINING

Learning type:

- TKI – Theoretical Knowledge Instructor
- e-L – electronic Learning
- SST – Self Study
- CRI – Class Rating Instructor

No.	Task name and description	Learning type	No. of hrs: min
1	Introduction	TKI	1:00
2	A/C general description, airframe	e-L/TKI	2:00
3	Flight controls	e-L/TKI	1:00
4	Instrument panels	e-L/TKI	2:00
5	Landing gear system	e-L/TKI	1:00
6	Doors, emergency exits and windows	e-L/TKI	1:00
7	Wing, flaps, spoiler system and ABC system	e-L/TKI	3:00
8	Engine	e-L/TKI	3:00
9	Fuel system	e-L/TKI	2:00
10	Hydraulic system	e-L/TKI	2:00
11	Electrical system	e-L/TKI	2:00
12	A/C lighting system	e-L/TKI	1:00
13	Air conditioning	e-L/TKI	1:00
14	Ice and rain protection	e-L/TKI	2:00

15	Pitot static system	e-L/TKI	1:00
16	Fire protection	e-L/TKI	1:00
17	Exterior markings / recorders	e-L/TKI	1:00
18	Emergency equipment	e-L/TKI	1:00
19	A/C systems review	CRI	4:00
20	A/C weights / instrument markings	SST/TKI	1:00
21	Performance limitations	SST/TKI	1:00
22	Powerplant	SST/TKI	1:00
23	Airspeeds	SST/TKI	1:00
24	Kinds of operation	SST/TKI	1:00
25	Systems and equipment limitations	SST/TKI	2:00
26	Electrical system limitations	SST/TKI	2:00
27	Hydraulic system limitations	SST/TKI	1:00
28	Ice protection system limitations	SST/TKI	1:00
29	Miscellaneous limitations	SST/TKI	1:00
30	Low visibility operation	CRI	3:00
31	Limitations review	CRI	4:00
32	General performance	CRI	2:00
33	RNAV	CRI	2:00
34	Weight and balance	CRI	2:00
35	Handling, servicing and maintenance	CRI	1:00
36	Normal procedures	CRI	2:00
37	Quick reference handbook	CRI	2:00
38	Flight planning and flight monitoring	CRI	1:00
39	Abnormal procedures	CRI	2:00
40	Emergency procedures	CRI	2:00
41	Cockpit and procedure training	CRI	8:00
42	GPS	CRI	3:00
43	Final knowledge test	-	2:00
44	Final test procedures	-	2:00
Total amount of hours			82:00

3. PRACTICAL PILOT TYPE RATING TRAINING

General instructions

Practical type training can begin only after the ground training and successful theoretical proficiency check.

Full Flight Simulator is recommended for practical type rating training followed by Base Training flights on the airplane after the student has successfully undertaken the type rating skill test.

The Base Training Flights under the supervision of the Type Rating Instructor must include:

- 6 take-offs and landings of which at least one is a full stop landing,
- One go-around with all engines operating.

Additionally, the Base Training on the airplane type must include at least 1 route sector flight.

The period between the completion of theoretical proficiency checks and practical type proficiency checks must not exceed 6 months, unless national aviation regulations provide otherwise.

Crew structure:

- PIC - instructor pilot (TRI).

- Co-pilot - student pilot.

Note: It is recommended that another pilot with minimum rating of co-pilot of L 410 UVP-E20 type rating is on board as Safety Pilot, unless national aviation regulations provide otherwise.

The number of flight training hours cannot exceed 4 hours a day.

During the period of training the instructor maintains a record of the accomplished training flights.

Before the proficiency check flight has commenced, the student is required to submit a properly kept set of records of training flights.

No.	Task name	Objectives	FH
1	Normal procedures: - flight preparation - take-off - approach - landing - parking Procedures in icing conditions ILS approach procedures	- Cockpit preparation - Start-up procedures and checklist - Normal flight procedures - ILS Approaches with AP/FD - After landing procedures and check-list - Operation in icing conditions	4:00
2	Normal procedures Abnormal procedures - flight instruments - flight controls - electrical system - miscellaneous - ventilation - power plant Emergency procedures - flight instruments - electrical system LOC/VOR/DME procedures Go-around procedures	- To improve the pilot's ability to proceed with the normal procedures - Familiarize with abnormal procedures - Familiarize with emergency procedures - Flight instruments malfunction - Flight controls malfunctions - Electrical system malfunctions - Ventilation system	4:00
3	Normal procedures Abnormal procedures - ice and rain protection - landing gear - hydraulic system Emergency procedures - landing gear - hydraulic system	- To improve abnormal and emergency procedures - Ice and rain protection malfunctions - Landing gear malfunctions - Hydraulic system malfunctions - To improve the go-around procedures	4:00
4	Normal procedures Abnormal procedures - power plant - fuel system - engine failures Emergency procedures - power plant - fire protection - engine failures Approach procedures	- To improve abnormal and emergency procedures - Power plant and engine failures - Fire protection - Fuel system malfunctions - ILS approach procedures	4:00
5	Normal procedures Abnormal procedures - engine failures Emergency procedures - engine fire Approach procedures GPWS and TCAS procedures	- To improve abnormal and emergency procedures - Engine fire and failure procedures - Generators' failure - GPWS procedures - TCAS procedures	4:00
6	Normal procedures	- Flight manoeuvres	4:00

FFS 3	Approach procedures Aircraft limitations	- Take-off cross wind procedures - Go-around procedures - Approach procedures	
7 FFS 4	Normal procedures - standard routes Abnormal procedures Emergency procedures Approach procedures - approaches Take off procedures - low visibility take-off	- To improve abnormal and emergency procedures - Instrument flight procedures - Low visibility procedures	4:00
8 FFS 5	Normal procedures Abnormal procedures Emergency procedures Approach / go-around procedures	- To improve abnormal and emergency procedures - Engine fire and failure procedures - Go-around procedures - Approach procedures - Flight control procedures	4:00
Total FSTD			32:00
FFS Check Ride	Proficiency check	- To check the level of student pilot's flight skills.	4:00

Appendix 2 – L 410 UVP-E20 – L 410 NG DIFFERENCES REQUIREMENTS TABLES

Definitions used in the ODR Tables:

LVL A = Self Instruction - Flight Manual/Pilot's Operating Handbook and/or FM Supplement

LVL B = Aided instructions

LVL C = Training devices

LVL D = Aircraft or FFS

ODR 1 General

DIFFERENCES TABLE FOR CANDIDATE AIRCRAFT: L 410 NG BASE AIRCRAFT: L 410 UVP-E20				COMPLIANCE METHOD					
				TRAINING				CHKG / Curr	
GENERAL	REMARKS	FLT CHAR	PROC CHNG	LVL A	LVL B	LVL C	LVL D	CHKG	Curr
General Airplane Dimensions	Change of fuselage length	NO	NO	X				A	A
Weights	See AFM, Section 2	NO	NO	X				A	A
Limitations	See AFM, Section 2	NO	NO	X				A	A
Instrument panel layout	New Garmin G3000 glass cockpit system installed	NO	YES				X	D	B
Engines	GE H85-200 BC04	NO	YES	X				A	A

ODR 2 Systems

DIFFERENCES TABLE FOR CANDIDATE AIRCRAFT: L 410 NG BASE AIRCRAFT: L 410 UVP-E20				COMPLIANCE METHOD					
				TRAINING				CHKG / Curr	
SYSTEM	REMARKS	FLT CHAR	PROC CHNG	LVL A	LVL B	LVL C	LVL D	CHKG	Curr
21 Air Conditioning	Newly installed automatic temperature control panel LUN 5722. Modification of air condition control panel	NO	NO	X				A	A
22 Auto-Flight	Dedicated AFCS (Automatic Flight Control System) mode control panel	NO	NO			X		C	B
23 Communications	The GIA 64 E is a remote-mounted integrated avionics unit that houses a GPS/WAAS, VHF COM, VHF NAV, and glideslope receivers in addition to supporting I/O processing, aural alert generation, and flight director functions. Two GIA 64 E units are proposed as standard for the G3000 system on the L 410 NG.	NO	YES		X			B	B
24 Electrical Power	L 410 NG model keeps the current architecture and function of generating and distribution system	NO	YES	X				A	A

	from L 410 UVP-E20 model. Modification on L 410 NG model is targeted to reduction of circuit breakers that supply the avionics and their replacement by two "AVION" switches. "AVION" switches controls connection of sub busses S1A, S1B, S3B and S2B.								
25 Equipment / Furn.	Design modification of the upholstery	NO	NO	X				A	A
26 Fire Protection	Modification of fire detection and fire extinguishing systems in front baggage compartment Modified engine fire valve, extinguishing controls and indication – Central Control Panel II	NO	NO	X				A	A
27 Flight Controls	Change of maximum deflection of elevator trim tab for preservation of longitudinal control trimming capability within the modified Mass – CoG envelope.	NO	NO	X				A	A
28 Fuel	Wing re-design, implementation of integral fuel tank, modification of central point refuelling system and its control panel, modification of the emergency shut-off valves and shutoff valves for fuel system, fuel pressure filling panel is added	NO	YES	X				A	A
29 Hydraulic	The limited modifications of hydraulic system and modification related to installation of Garmin 3000	NO	YES	X				A	A
30 Ice / Rain	Small modification of de-icing control panels	NO	NO	X				A	A
31 Indicating/ Record	New avionics PFD/MFD and EWD presentation, OVHD panel, pedestal, side panels, new FDR and CVR units	NO	NO				X	D	A
32 Landing Gear	The limited modifications of hydraulic system, Landing gear control lever relocated	NO	NO	X				A	A
33 Lights	New internal lighting system	NO	NO	X				A	A
34 Navigation and pitot static	Garmin 3000 and integrated units installation and probes type and location change.	NO	YES				X	D	B
35 Oxygen	No change	-	-	-	-	-	-	-	-
36 Pneumatics	Not installed	-	-	-	-	-	-	-	-
37 Vacuum	Not installed	-	-	-	-	-	-	-	-
38 Waste / Water	No change	-	-	-	-	-	-	-	-
45 Central Maintenance System	Not installed	-	-	-	-	-	-	-	-
46 Information Systems	Not installed	-	-	-	-	-	-	-	-
49 APU	Not installed	-	-	-	-	-	-	-	-
52 Doors	Small design modification of the emergency exits	NO	NO	X				A	A
53 Fuselage	Extension of nose fuselage section to increase capacity of baggage compartment	NO	NO	X				A	A

54 Nacelles/Pylons	No change	-	-	-	-	-	-	-	-
55 Horizontal & Vertical Stab.	Vertical stabilizer dimensional and deflections changes	NO	NO	X				A	A
56 Windows	No change	-	-	-	-	-	-	-	-
57 Wings	Internal design change	NO	NO	X				A	A
61 Propellers	Max. propeller revolutions change, indication on the Garmin 3000	NO	NO		X			B	B
72 Engine (turbine)	Installation of GE H85-200 BC04 engines	NO	NO		X			B	B
73 Fuel Controls	Not applicable	-	-	-	-	-	-	-	-
74 Engine Ignitions	Ignition unit change	NO	NO	X				A	A
75 Engine Bleed Air	No change	-	-	-	-	-	-	-	-
76 Engine Controls	Replacement of sensors of engine parameter, indication of engine parameters on Garmin 3000 Modification of Engine Start and Dry Motor Run controls, Central Control Panel change	NO	NO	X				A	A
77 Engine Indicating	Replacement of sensors of engine parameter, indication of engine parameters on Garmin 3000	NO	YES		X			B	B
78 Exhaust	No change	-	-	-	-	-	-	-	-
79 Engine Oil	No change	-	-	-	-	-	-	-	-
80 Engine Starting	Modification of Engine Start and Dry Motor Run unit	NO	NO	X				A	A

ODR 3 Maneuvers

DIFFERENCES TABLE FOR CANDIDATE AIRCRAFT: L 410 NG BASE AIRCRAFT: L 410 UVP-E20				COMPLIANCE METHOD					
				TRAINING			CHKG / CURR		
MANEUVER	REMARKS	FLT CHAR	PROC CHNG	LVL A	LVL B	LVL C	LVL D	CHKG	CURR
Normal procedures	Garmin G3000 Normal speed changes Relocation of pitot tubes Newly installed automatic temperature control panel LUN 5722. Modification of air condition control panel Ground spoilers can be activated by both members of flight crew. Modernization of control box of the pneumatics de-icing system Modernization of control and indicating box of the pitot/static heating system Adding RH side static ice detector and ice inspection lights for observing wing leading edges at night. Modification of Engine Start and Dry Motor Run controls.	NO	YES				X	D	B

Abnormal procedures	Garmin G3000 Abnormal speed changes Modified engine fire valve, extinguishing controls and indication	NO	YES				X	D	B
Emergency procedures	Garmin G3000 Emergency speed changes Modified engine fire valve, extinguishing controls and indication	NO	YES				X	D	C

Appendix 3 – L 410 UVP-E20 TO L 410 NG DIFFERENCES TRAINING

1. INTRODUCTION

This section specifies differences of pilot training minimum syllabus for L 410 NG from the L 410 UVP-E20 airplane.

2. APPLICANT PREREQUISITES

The applicant for this training program must fulfil the requirement defined in section 6.2.1.

3. METHOD OF TRAINING

The pilot difference rating training is divided into two separate sections:

1. Theoretical study, which is set up in the form of learning courses (modules). The aim of this difference training is to become familiarized with the technical information about the differences between L 410 UVP-E20 and L 410 NG models (airplanes and system description, and operation).
2. Practical ground and flight training on the aircraft including student proficiency check. This training section can be started only when the student successfully passes the proficiency check of the theoretical study.

4. THEORETICAL TRAINING

Learning type:

- TKI – Theoretical Knowledge Instructor
- e-L – electronic Learning
- SST – Self Study
- CRI – Class Rating Instructor

No.	Task name and description	Learning type	No. of hrs: min
1	Differences between L 410 UVP-E20 and L 410 NG	e-L/TKI	3:00
2	Garmin G 3000 familiarization on the static airplane	e-L/TKI	4:00
	Total amount of hours		7:00

5. PRACTICAL PILOT TYPE RATING TRAINING

General instructions

Practical type training can begin only after successful theoretical proficiency check.

Practical type training is performed on the real airplane or FFS.

Note: It is recommended that another pilot type rated on L 410 UVP-NG is on board of the aircraft as Safety Pilot, unless national aviation regulations provide otherwise.

The number of training hours cannot exceed 4 hours a day.

During the period of training the instructor maintains a record of the accomplished training flights. Before the proficiency check flight has commenced, the student is required to submit a properly kept set of records of training flights.

No.	Task name	Objectives	FH
1	Familiarization / training flight	<ul style="list-style-type: none"> - G 3000 approaches min. 3 times (VOR, ILS, RNAV) - landing – 2 times - To gain the pilot's ability to handling G3000 	3:00
2	Line-oriented Flight Training (LOFT)	<ul style="list-style-type: none"> - line flight from departure to destination with training all normal procedures from pre-flight inspection to airplane parking - G 3000 handling 	2:00
	Total amount of flight hours		5:00

When completing difference training from L 410 UVP-E20 to L410 NG a minimum of 2 route sectors (one (1) as PF and one (1) as PM) should be performed with a PIC current and qualified on the L 410 NG.